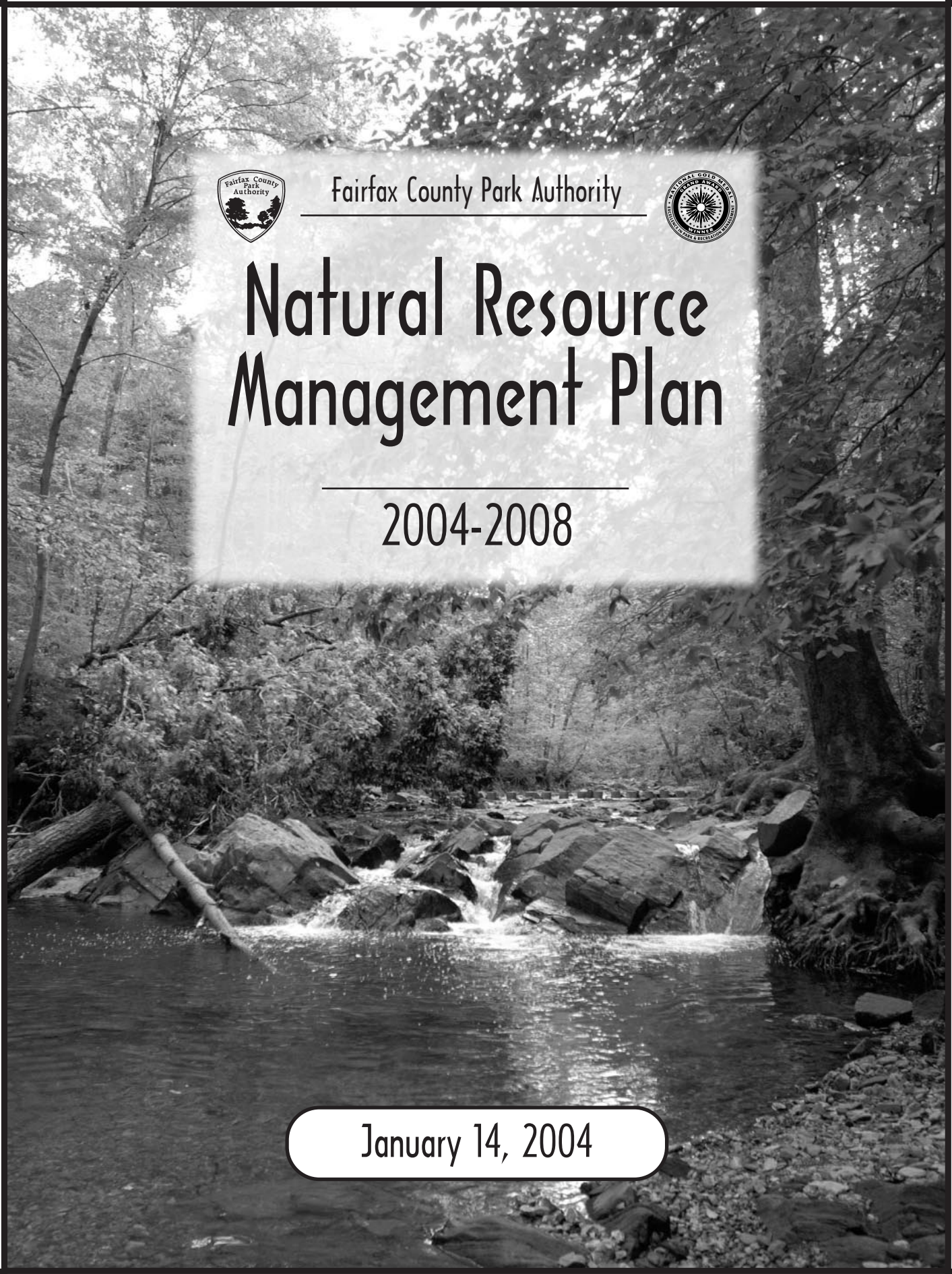

Fairfax County Park Authority

Natural Resource Management Plan

2004-2008

January 14, 2004

http://www.fairfaxcounty.gov/parks

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Introduction

The purpose of this Natural Resource Management Plan is to coordinate agency-wide efforts to achieve the resource preservation vision of the Fairfax County Park Authority. (Cultural resource management will be addressed in a separate Cultural Resource Management Plan the Park Authority plans to complete in fiscal year 2005.) Because every Park Authority employee and every citizen of Fairfax County can play a role in achieving this vision, the Natural Resource Management Plan is written for a broad audience. Each of the plan's seven elements includes a background section to introduce the topic, as well as the plan's issues and strategies.

As the county's largest landowner (over 22,500 acres in more than 385 parks), much of the responsibility for preserving Fairfax County's rich natural and cultural resource heritage rests with the Fairfax County Park Authority. The Park Authority holds this heritage as a public trust to preserve for current and future generations.

It may seem logical that acquiring natural areas as parkland is enough to assure preservation and that they are best left alone to take care of themselves. However, natural areas undergo constant change and require active management to retain their functions and values. This is particularly true within rapidly urbanizing areas like Fairfax County, where the impacts of surrounding development often place tremendous stresses on natural areas. Among those impacts are stormwater runoff, water and air pollution, invasive plants, wildlife conflicts and encroachment by adjoining property owners.

Preparing an agency-wide natural resource management plan for a large suburban park system is a relatively new concept. Resource management plans have typically been done only on a park-by-park basis. This has also been the past practice of the Fairfax County Park Authority. However, current policies and plans adopted by the Park Authority Board set a high standard for resource protection that requires an agency-wide commitment to natural resource preservation and management. These guiding documents consist of the 1995-2010 Park Comprehensive Plan, the 2002-2006 Fairfax County Park Authority Strategic Plan, and policies adopted by the Park Board. (A summary of the plans and policies relating to natural resource management is presented in an appendix to this document.) The activities of this natural resource management plan are fully consistent with those plans and policies.

The Park Authority is not fully achieving its policy vision for natural resource preservation today. Many existing parks lack inventories to determine the significance of their natural resources. New methodologies are needed to present resource inventory data and analyses to allow the Park Board to make informed decisions when planning parks. Few current parks with known significant natural resources currently have site-specific natural resource management plans to guide resource protection, or the staff and fiscal resources to carry out such plans.

This five-year agency-wide plan creates a system-wide approach necessary to achieve the Park Authority's resource preservation vision. An annual implementation plan will be prepared to define the scope of work for each year. This is the same process used for the agency strategic plan. Some of the plan's strategies can be accomplished with existing fiscal and personnel resources, while others will require additional support. Volunteers and partnerships will play a critical role in carrying out many of the strategies.

The plan contains seven elements: Natural Resource Management Planning, Vegetation, Wildlife, Water Resources, Air Quality, Human Impact on Parklands, and Education. Note: strategies that correlate with those in the Park Comprehensive Plan or the Park Authority Strategic Plan have notations in brackets following the strategy. Example: [Strategic Plan Strategy 1.0, Stewardship Opportunity Area] The appendix summarizes the policies and plans adopted by the Park Authority Board applicable to the plan.

Plan Elements Natural Resource Planning

Background

Current Park Authority lands represent 8.6% of Fairfax County's total land area of 262,400 acres. Combined with other public parks in Fairfax County, they represent over 15% of the county's landmass. In 2003, only about 26,000 acres of county land (excluding parkland) remains undeveloped. As this undeveloped land continues to shrink, parkland will become even more critical to preserving the county's natural heritage.

After more than 50 years of land acquisition and development by the Park Authority, natural resource protection has taken on many forms. Land has been acquired to protect streams, wetlands, forests and other resources. General Management Plans and adopted plans identify resource stewardship zones that exclude major development. Numerous parks where development is planned have remained undeveloped or partially developed due to funding limitations. The result is a substantial inventory of natural resources and natural areas.

The Fairfax County Comprehensive Plan recognizes that the county's park system "serves as a primary public mechanism for the preservation of environmentally sensitive land and water resources…." but that "adverse impacts of nearby development on parks and recreation resources are pervasive and growing." The types of impacts noted are routing of road and utility rights-of-way through parklands, increased siltation and erosion, loss of buffer areas, and fragmentation of wildlife habitats.

Public demand for natural areas and natural resource-oriented recreational activities is measured in the Park Authority's Needs Assessment Study, the most recent version of which was completed in 2003. The following data relevant to this plan was reported in the 2003 plan:

- 54% of households have a need for nature centers/natural areas
- 64% of the 54% households with a need indicated that their needs for nature centers/natural areas are completely met, 32% of those households needs are partially met and 4% are not met at all
- 29% of individuals visit nature centers
- 16% of individuals participate in birding/nature study
- 23% of individuals visit horticulture centers or public gardens
- 21% of county households placed nature centers/natural areas in the top four most important facilities to their household

Issue 1 Natural Resource Inventories and Planning

Park Policy 101.1 requires that "…the uniqueness and value of natural and cultural resources, as determined by adopted criteria, are the primary requisites for acquisition and appropriate development and use levels." Policy 201 requires the Park Authority to develop natural resource management plans for selected parks and to base development of recreational facilities on compatibility with approved natural resource plans.

However, at present, natural resource assessments and inventories are not typically completed before new parkland is acquired or immediately after its acquisition. Such studies currently occur in the master planning process, which may begin many months or years after acquisition. This gap in natural resource assessment activity creates a void in which significant natural resources may remain unrecognized and be degraded. The resulting lack of baseline natural resources data can also lead to mistaken assumptions about the types of facilities that are appropriate for new park property. Such assumptions can be difficult to change later when significant natural resources are documented in the

planning process. In addition, the Park Authority currently has no methodology to weigh or rank relative values of natural resources associated with a land parcel in comparison with the values the parcel offers for development of facilities.

Data for soils and topography have long been included in master plans and no improvements in these areas appear to be needed. However, detailed inventories of wetland or forest stand delineations have only been completed in recent years. As of 2003, natural resource inventory data exists for less than a dozen of the more than 385 parks in the Fairfax County Park Authority system. At present, these existing natural resource inventories for individual parks are isolated data sets. Data is currently recorded into spreadsheet files that must be converted to a format compatible with ArcView, the County's GIS software. This database is currently being developed.

When significant natural resources are identified at a park, a natural resource management plan should be prepared to specify procedures to monitor and maintain the quality of those resources. As of 2003, natural resource management plans had been prepared for only a handful of parks in the Fairfax County Park Authority system. Staff estimates that dozens of existing parks require natural resource management plans to meet agency policy guidelines.

The Park Authority's Planning and Development Division has developed a valuable screening tool called the Green Infrastructure Model that highlights county areas with probable natural and cultural resources. It has great utility for land acquisition and other macro-perspective uses.

Valuable data is also available from federal, state and non-governmental sources. The Park Authority has been active in developing partnerships to share such data and explore technology that offers new analytical tools. Improved methodologies are needed to present resource inventory data and analyses upon which the Park Board can make informed decisions when planning parks.

Strategies

1.1 Create procedures to assure that the Resource Management Division (or contractors under its supervision) will:

- Create a standard procedure and format for written pre-acquisition natural resource assessments.
- Create written preliminary natural resource assessments prior to purchase of new parkland.
- Begin natural resource inventories and analysis within 90 days of purchase of new parkland or receipt of transferred property from the Board of Supervisors or other sources. The analysis will note whether the natural features of the site meet criteria for the development of a natural resource management plan.

1.2 Create criteria to determine appropriate thresholds in ranking methodology to create resource stewardship zones in the master planning process.

1.3 Review and refine criteria in Park Policy 201 to determine which parks require natural resource management plans.

1.4 Create a standard format for site natural resource management plans and pilot test the format for plans at several parks with significant natural resources.

1.5 Explore the potential to adapt or develop a ranking methodology to present findings from natural resource inventories and analyses as relative values in quantitative and qualitative dimensions as a planning and decision-making tool for the Park Authority Board, staff and citizens. Explore whether facility development potential can also be evaluated with this methodology to allow comparisons between a park site's natural resource value and its potential facility development value.

1.6 Create a natural resource inventory database in the county GIS and coordinate with appropriate Environmental Coordinating Committee agencies to design and implement additional natural resource data layers in the system.

1.7 Enter plats for new land acquisitions and new or revised General Management Plan or Conceptual Development plan maps in CADD and GIS as part of the acquisition and master planning processes. Existing master plans not in a digital format will be digitized.

1.8 Explore the applicability to the Park Authority of field data collection and database tools developed by other organizations, including the hand-held device for developed by the New York Natural Heritage Program.

1.9 Promote partnerships and volunteer participation in resource management inventories, plans and management.

1.10 Continue the partnership between the Planning and Development Division and the Resource Management Division, in coordination with the Department of Planning and Zoning, the Department of Public Works and Environmental Services, and the Virginia Department of Conservation and Recreation's Natural Heritage Program, to enhance the Green Infrastructure Model.

1.11 Develop criteria and priorities for acquisition of natural resource sites as required in Park Policy 101.1-B-1 and based on the deficiencies of various habitats or resources among current park holdings. [Strategic Plan Strategy 1.1, Stewardship Opportunity Area]

1.12 Pursue opportunities through open space easements, proffered dedications, acquisitions and partnerships to preserve and protect additional open space – particularly land with significant natural, cultural or horticultural resources. Educate citizens about their opportunities to participate in these programs and to protect natural resources on their land. [Strategic Plan Strategies 1.1 & 1.3, Stewardship Opportunity Area]

1.13 Participate in county revitalization projects to identify areas appropriate for resource and open space preservation, as well as passive recreation. [Strategic Plan Strategy 1.4, Stewardship Opportunity Area]

1.14 Consider the creation of a project category in the 2004 Park Bond Program for Natural and Cultural Resource **Planning** and Stabilization. This project would represent an expansion of the Natural and Cultural Resource Stabilization project in the 1998 Park Bond Program. The new program would not only provide funding for emergency resource stabilization needs, but also for exempt staff or contractors to conduct:

- Initial natural resource assessments of land being considered for acquisition
- Natural resource inventories and assessments immediately after acquisition (prior to assignment of master planning funds from Park bonds)

- Natural resource management plans and activities for the most significant parcels

1.15 For park sites with leases for telecommunications facilities that also meet criteria for site natural resource management plans, prepare cost estimates to allow appropriate decision-makers to consider allocating telecommunication lease revenue to fund that park's resource management activities. Such activities may include preparation of resource management plans, inventories, project scopes, and carrying out resource management tasks.

1.16 Identify additional fiscal and personnel resources required to carry out the strategies in the Natural Resource Management Plan and seek those resources through the Fairfax County budget process or other means to add appropriate staffing, equipment and operating funds. [Strategic Plan Strategies 3.2, 3.4, Stewardship Opportunity Area]

1.17 As specified in the Park Comprehensive Plan's Natural Resources Program Action Agenda, develop, in cooperation with the Department of Planning and Zoning, a countywide Open Space Plan for Park Board consideration. As noted in the Park Comprehensive Plan, the Open Space Plan should include:

- The location, amount and purpose of lands to be conserved
- Appropriate strategies for protecting designated public and private lands
- Identification of park and private lands under easements which are particularly sensitive to impacts of off-site development, encroachments and public utility corridors
- Mitigation guidelines for such impacts

1.18 Coordinate with the Department of Planning and Zoning to include appropriate components of the Park Authority Natural Resource Management Plan in the revision of the environmental portion of the County Comprehensive Plan, scheduled for 2004.

Issue 2 Partnerships and Best Practices

The Fairfax County Board of Supervisors (BOS) and the Fairfax County Executive have focused extensively on environmental issues in recent years. Fairfax County hired its first Environmental Coordinator in 1999 and created a Environmental Coordinating Committee (ECC) in the same year to provide a forum for all agencies with environmental responsibilities to coordinate their actions. In 2003, two entities of Fairfax County government achieved Environmental E2 certification from the Commonwealth of Virginia based on their development of an Environmental Management System (EMS). The Park Authority is also preparing documentation to achieve Virginia E2 status.

In response to BOS mandates and its own initiatives, the Fairfax County Department of Public Works and Environmental Services has undertaken a variety of projects that represent significant progress in the county's management of natural resources. Some of these initiatives are detailed in the Water Quality Element.

The Park Authority's working relationships with the many Fairfax County agencies involved with environmental issues have been enhanced by participation in the ECC. There is great potential for additional cooperation and joint action to improve resource protection and management on Park Authority and county land.

The Park Authority's relationship with the Board of Supervisors' Environmental Quality Advisory Committee (EQAC) has expanded in the past year, with a presentation by the Park Board Chairman and Director, as well as a joint meeting of the Park Board and EQAC.

Partnerships have been very important to the Park Authority's natural resource management efforts. Frequent assistance has been received from the Virginia Department of Conservation and Recreation, as well as other state and federal agencies. Non-governmental organizations, such as the Northern Virginia Conservation Trust, the Northern Virginia Soil and Water Conservation District, the Audubon Naturalist Society, and the Potomac Conservancy have also been fertile ground for partnerships.

Internally, the Park Authority is conducting a natural resource management best practices survey as part of the 2003 Park and Recreation Needs Assessment Study. Information from seven U.S. agencies and organizations with extensive natural resource lands is being analyzed to provide guidance to the Park Authority concerning resource management practices.

Participating organizations included the Virginia Department of Conservation and Recreation, Boulder County (Colorado), Cleveland Metroparks (Ohio), Jefferson County (Colorado), Los Angeles County (California), Three Rivers Park District (Minnesota) and the Minnesota Land Trust. Areas for best practice comparison included methods for identifying land for acquisition, resource evaluations of prospective acquisitions, creation of resource inventories and management plans, workforce allocated to resource management, and evaluation of resource management activities. This study is expected to be completed by January, 2004.

Strategies

2.1 Continue and expand the Park Authority's participation in the Fairfax County Environmental Coordinating Committee chaired by the Deputy County Executive.
[Strategic Plan Strategy 2.1, Stewardship Opportunity Area]

2.2 Complete the Park Authority's Environmental Management System and application to the Commonwealth of Virginia for E2 Certification.

2.3 Participate in the interagency team undertaking preliminary work to create a Fairfax County Natural Resource Management Plan.

2.4 Share the results of the Resource Management Best Practices Survey included in the 2003 Park and Recreation Needs Assessment Study with the ECC and invite participating agencies to collaborate in continuing reviews of Best Practices. Adopt appropriate changes to Park Authority resource management best practices based on the completed study. Share the study results with the public via the Resources Online website.

2.5 Continue and expand the Park Authority's relationship with the BOS-appointed Environmental Quality Advisory Committee (EQAC) by inviting that group to meet annually with the Park Board and by sharing the Quarterly Environmental Issues Update prepared for the Park Board with EQAC.

2.6 Continue and expand partnership projects with the Fairfax County Department of Public Works and Environmental Services, Department of Planning and Zoning, the Northern Virginia Regional Park Authority, the Northern Virginia Soil and Water Conservation District,

the Northern Virginia Conservation Trust, the Potomac Conservancy, the Audubon Naturalist Society, the Virginia Department of Conservation and Recreation, the Virginia Department of Forestry and other appropriate organizations and jurisdictions to enhance the Park Authority's resource management capabilities.

2.7 Establish an inter-division Park Authority team to evaluate how effectively the agency is incorporating natural and cultural resource protection into all aspects of park development, operations and maintenance, and recommend appropriate changes in procedures. [Strategic Plan, Strategy 2.6, Stewardship Opportunity Area]

2.8 Cooperate with the Federation of Park Authority Friends Groups, as well as individual park "friends" organizations to enhance public understanding and support for the agency's resource preservation and management programs.

Issue 3 Categorizing Natural and Developed Parkland

While it is challenging to compile data on the amount of developed versus undeveloped parkland, this information will help inform decision making by staff and the Park Board relative to the appropriate balance between the agency's role as a land preserver and land developer. Parkland can be categorized as:

- Designated natural areas
- Natural areas designated for later development
- Developed areas

Strategies

3.1 Refine the agency definition of natural versus developed land and create a methodology to calculate and map these designations as part of the master planning process.

3.2 Modify the Park Authority's master facilities database, the Register of Parks and Facilities, to incorporate data on natural versus developed land created in the master planning process.

Plan Elements Vegetation

Background

Plant communities are the most readily apparent natural resources on parkland and also the source of habitat and food for most park wildlife. An understanding of the plant communities on parkland is essential to successful management of all park natural resources.

Despite intensive development, Fairfax County retains areas of rich vegetative diversity. A boulder-strewn slope in Cub Run Stream Valley Park sampled by the Virginia Department of Conservation and Recreation (DCR) in July 2003 contained 125 plant species. That represents the highest species richness attained in any of the 3,000-plus vegetation plots sampled statewide by DCR ecologists since 1990.

Change is constant in natural communities and is even more dynamic in areas like Fairfax County due to impacts from urbanization. Some means of tracking qualitative and quantitative changes in plant communities is essential to resource protection.

Some plant communities have especially high value because of the range or numbers of species they support. These communities should logically be targeted for acquisition, preservation and active management, especially if they are not abundant within Fairfax County. Other plant communities have become rare in Fairfax County and should be protected when possible.

Fairfax County is not home to large numbers of rare or threatened plants but, to the extent they do exist – or may exist – on parkland, the plants and their communities must be preserved and protected, according to the Park Board's adopted policies.

Issue 1 Assessing the Quality of Vegetative Communities

Understanding changes in vegetative communities is a significant factor in preserving and managing them. Change is a continual process whether plant communities are in an isolated natural setting or under stress from surrounding developed areas, which is often the case on parkland.

The Commonwealth of Virginia is participating with a number of states, The Nature Conservancy and other organizations to create the United States National Vegetation Classification – a comprehensive classification of natural communities based on vegetation that will facilitate identification and ranking. This will be an valuable tool for resource management. Since this effort will take at least a decade, the Virginia Department of Conservation and Recreation (DCR) has developed a provisional classification system that includes 120 ecological community groups. The intent is to facilitate the identification and protection of excellent examples of all of the natural community types.

The Fairfax County Park Authority is already working with the DCR on a variety of natural resource issues, and it will be beneficial to design the Park Authority's inventory and classification methods to be compatible with the evolving classification and ranking system for Virginia.

There are several tools available that could be used to track vegetative change over time. Several Park Authority natural areas are participated in a 2002-2003 study with the Urban Forestry Branch of Fairfax County Department of Public Works and Environmental Services to conduct baseline inventories using the National Vegetative Mapping Protocol as part of a region-wide, grant-funded vegetation analysis. The data points used in this study were registered using a GPS, were entered in the Fairfax County GIS and are available for reference. Two other programs with potential

applicability for the Park Authority are the U.S. Forest Service Forest Health Monitoring Program and Virginia DCR vegetation monitoring programs.

The Park Authority is currently using forest and wetland delineation methodologies developed by the Maryland Forest Preservation Program. Additional review of available vegetation inventory methodologies is appropriate to determine the best long-term techniques for the Park Authority.

Some parkland plant communities with high habitat value and especially those that have become rare in Fairfax County merit special attention in resource management. Such communities include mature field systems, wildlife corridors, large forested tracts that could harbor interior forest dwelling species, communities with a high degree of diversity, and areas designed as rare, threatened or endangered. Mapping the location and extent of such valuable plant communities is an important tool for land acquisition, planning and management tool for parkland. Facilities such as roads, trails and utilities should be located to avoid compromising these areas.

Strategies

1.1 Define the plant communities in Fairfax County that have high habitat value and have become rare or merit special attention in resource management. Include identification and GIS mapping of these designated plant communities. Add identification and GIS mapping as part of all master planning projects.

1.2 Explore existing forest assessment methodologies, such as the U.S. Forest Service (USFS) Forest Health Monitoring Program, to identify or develop appropriate tools for the Park Authority.

1.3 Create a process to develop forest management plans for appropriate sites in partnership with the Virginia Department of Forestry, which has offered assistance.

1.4 Monitor the progress of the Virginia DCR's development of a comprehensive classification of natural communities to maintain compatibility between plant inventory data collected by the Park Authority and the emerging classification system at the state level.

1.5 Promote partnerships and volunteer participation in vegetative inventories, plans and management.

1.6 Explore the potential of forming a citizen advisory committee to provide guidance and assistance on vegetative issues.

Issue 2 Preserving Rare and Significant Plants

The Park Authority's adopted policies require that plants with federal or state designation as endangered or threatened be protected and preserved. For federally listed species, such protection is a legal requirement. Extensive data on endangered and threatened plants is available from federal government and Commonwealth of Virginia, as well as non-governmental organizations.

The Small whorled pogonia is currently the only federally-listed endangered or threatened species thought to have some likelihood of occurring within Fairfax County's parks. It has not been found

to date. There are three Virginia-listed species that have been documented in Fairfax County, including Epiphytic sedge (Carex decomposita), Virginia nailwort (Paronychia Virginica) and Eared tomanthera (Tomanthera auricilata).

In addition to state-listed endangered or threatened plants, the DCR maintains lists of plants most likely to be lost without conservation action. The Virginia Rare Vascular Plant List, comprising about 22% of the state's native flora, includes 611 plants believed to be sufficiently at risk to merit an inventory of their status and locations. The Virginia Vascular Plant Watch List comprises an additional 16% of the state's native plants and includes 433 plants which may or may not be of high conservation concern, but are monitored to determine population trends. The Virginia Rare Non-Vascular Plant List includes 32 lichens, liverworts and mosses thought to be rare. These lists are dynamic and are revised annually.

The Park Authority has not developed a list of plant species that are listed as threatened, endangered or of special concern by the federal government or Commonwealth of Virginia. Development and maintenance of such a data base for Fairfax County is an important tool to manage vegetative habitats.

Strategies

2.1 Develop and maintain a Fairfax County Plants Database including federal, state or local designations of threatened, endangered or of special concern. New data from these sources will be incorporated as it becomes available.

2.2 For any threatened, endangered or special concern plant species on the Fairfax County Plants Database, complete queries in GIS to map the extent of individual habitats required for each. Conduct field reconnaissance to determine whether each listed plant is present on parkland.

2.3 When threatened, endangered or special concern plants listed in the Fairfax County Plants Database are located on parkland, initiate management and protection strategies according to legal requirements and agency policy to preserve the plant and its required habitat. If the plant and habitat meet established criteria, a site natural resource management plan will be prepared and the plant habitat will be protected with resource stewardship zone designation in the master planning process.

2.4 Identify and map rare natural plant communities within Fairfax County parklands that have been identified by the Virginia DCR and if the plant community meets established agency criteria, apply resource stewardship zone designation in the master planning process and create a resource management plan for the site. Work with the DCR to identify, locate and preserve rare plant communities.

Issue 3 Controlling Invasive Plants

Native plants are those that occur naturally in a particular place without human intervention. Plants native to North America are generally recognized as those occurring on the continent prior to European settlement. Non-native plants are those introduced from other continents, states, ecosystems and habitats. They may spread from adjoining properties, be planted intentionally as landscaping, or be transported by wind or wildlife.

While many non-native plants have value for agriculture, forestry, horticulture or other purposes and pose little or no threat to natural ecosystems, others have become invasive and pose a serious ecological threat. Invasive plants often reproduce rapidly, spread over large areas of the landscape and have few, if any natural controls to keep them in check. Invasive plants can impact ground cover and understory plants, as well as reach into forest canopies, damaging or destroying mature trees. In some situations, invasive plants can be difficult or almost impossible to control.

Often, the spread of invasive plants results in degrading habitats, greatly reducing plant and wildlife diversity and abundance. The control of invasive plants is a necessary step in preserving the native vegetation and wildlife on County parklands.

Invasive plants can be controlled by a variety of means. Two of the most effective control methods are to avoid planting known invasives and to reduce soil disturbance, which often creates opportunities for invasive species. Invasive plants can be controlled by mechanical means (hand-pulling or use of hand or power tools), introduction of a pest species, or application of herbicides.

As part of a 2001grant project funded by the National Fish and Wildlife Foundation to remove the invasive Japanese stilt grass from Huntley Meadows Park, test plots were created to compare the effectiveness of manual removal of the invasive grass to herbicide application and a control plot. Herbicide application was found to be the most effective method.

Herbicides are widely used in home and institutional settings, but some members of the community oppose their use in parks. Herbicides can cause harm in ecosystems and must be used prudently. As part of an Integrated Pest Management (IPM) program, in which various measures against pests are employed to accomplish goals and limit negative impacts, herbicides can be an invaluable tool to control invasive plants. Under such an approach, the least toxic herbicide is used that is effective for the problem being addressed.

Herbicides can be used on public land only by licensed applicators. Herbicide application in forested areas requires a forest pest control certification. The Fairfax County Park Authority currently has pest control applicators certified for turf and ornamental plant applications, but does not have any staff with forest pest control certification.

Strategies

3.1 In consultation with the Environmental Quality Advisory Council, the Environmental Coordinating Committee, and other appropriate entities, develop a Park Authority policy addressing native plants and the planting, cultivation and removal of invasive plants on parkland. Present the draft policy to the Park Authority Board for consideration.

3.2 If adopted by the Park Board, present the Park Authority Invasive Plants Policy to the Fairfax County Environmental Coordinating Committee for consideration and possible county-wide implementation. [Strategic Plan Strategy 5.1, Stewardship Opportunity Area]

3.3 Take appropriate steps to have at least four Park Authority staff become certified forest pest control applicators for herbicide application. As part of this process, maintain a list of the currently certified pest control technicians on staff.

3.4 Explore grant funding for pesticide applicator training in cooperation with the Virginia Department of Forestry, which has offered assistance.

3.5 Continue to identify and map invasive plant concentrations as part of natural resource inventories for new and revised park master plans. In instances where invasive plant concentrations on adjacent private land threaten the park and if the adjacent land owners agree to participate, extend (when feasible) invasive plant identification and mapping to adjacent lands.

3.6 Create a methodology to prioritize control of invasive plant concentrations based on importance and whether effective mitigation is possible and cost-effective. List the most urgent projects and identify the cost for each.

3.7 Allocate existing resources for invasive plant mitigation based on identified priorities. Seek appropriate staff and budgetary resources to complete the list of urgent invasive plant removal projects on Park Authority land. Proceed with projects as funding allows.

3.8 Develop educational programs and materials to make Fairfax County citizens and Park Authority staff more aware of invasive plant issues, including actions they can take to help control the spread of invasives on parkland and private property. Communicate to owners of private land adjoining parkland to provide information on invasive plant control and invite their participation in control efforts.

3.9 Seek appropriate funding to create a staff unit within the Park Authority to work exclusively on invasive plant control at park sites. Activities will include assessing the extent of invasive plants at individual parks, setting priorities for invasive plant removal, developing project scopes and cost estimates, developing partnerships, conducting invasive plant removal, training and supervising volunteers, revegetating invasive plant removal areas, and monitoring effectiveness of the program.

Plan Elements Wildlife

Background

Thanks to past and present conservation efforts, residents of increasingly urban Fairfax County still have a rich diversity of wildlife in their parks, including river otter, bald eagle, fox, deer, beaver, reptiles, amphibians and birds. The Park Authority's mission and adopted policies require preservation and protection of this legacy.

This protection currently takes many forms. Paid and volunteer staff monitor populations of birds, beaver, deer and other wildlife. Some of this data is now available on the Park Authority's web site. Nest box programs encourage bluebird nesting. Meadows are maintained to support wildlife dependent on that habitat. Brush piles are created to provide additional wildlife cover.

There are many techniques and tools to assess and manage wildlife populations. Several are employed in this plan as cost-effective means to gain a better understanding of wildlife management needs. Volunteers and partnerships are also an important source of resources and expertise to enhance the Park Authority's wildlife management program.

It is inevitable in an urban county that conflicts will occur between wildlife and human residents. The Park Authority adopted a Wildlife Conflict Resolution Policy (Policy 202) in 1998 which guides the agency in mitigating such conflicts.

Fairfax County is not home to large numbers of rare or threatened animals but, to the extent they do exist – or may exist – on parkland, they must be preserved and protected, according to the Park Board's adopted policies.

Issue 1 Assessing the Health of Wildlife Populations

Habitats and wildlife populations undergo continuous change due to a variety of factors. Without some means of tracking their health, major declines in habitat value and wildlife populations can occur over time and not be noticed.

A Fairfax County List of Indicator Bird Species was developed as a wildlife management tool by the Park Authority staff naturalists in 1999. This list is intended to provide an efficient and cost-effective tool to draw attention to key bird species and what their abundance may suggest about habitat change or other environmental factors. This method provides comparable data from individual park sites. The list includes 16 birds that are neither abundant or rare, but have high visibility and are popular with volunteer staff and visitors who can participate in monitoring activities. Most are migratory species with varied habitat requirements commonly found throughout parklands. Population decreases or increases among the indicator bird species could signal either positive or negative habitat changes, although there could also be many other causes. Extensive research data on birds is readily available and some bird species can be an effective indicator of environmental health. It may also be beneficial to develop a list of indicator species for other types of wildlife as part of a systematic approach to monitoring the health of park wildlife.

Another potentially valuable wildlife management tool involves identifying wildlife species worthy of monitoring. The Virginia Department of Conservation and Recreation includes a category in its Rare Animal Species list for species of "special concern." These may be species thought to be in decline or

of particular interest. Similarly, a list of Fairfax County Wildlife Species of Local Concern provides an opportunity to focus on wildlife that may be important or valuable to monitor. Like the indicator bird list, focusing on species of local concern can provide a common perspective on wildlife management activities at individual park sites and for system-wide activities.

The value of both the Indicator Bird Species List and the Wildlife Species of Local Concern List will be evaluated annually to determine whether they continue to be appropriate tools for the Park Authority. In the meantime, the value of these two techniques is that they are easy to apply, can involve volunteers and park visitors in data collection, and can increase awareness of park wildlife. Staff will also continue to establish baseline inventories of various animal populations (mammals, birds, herpetofauna, insects, etc.) and track changes in those populations over time.

One habitat – intermittent or ephemeral bodies of water – merits special mention with regard to wildlife management. Temporary bodies of water, such as seasonal or vernal ponds, are essential habitat for many amphibian species because their intermittently dry nature precludes the presence of fish populations that are major predators of the amphibian eggs, hatchlings and sub-adult amphibians. Intermittent water bodies range from less than a yard across and inches deep to ponds over 150 yards in diameter. Intermittent streams, natural depressions, man-made ditches and vehicle ruts may all result in creation of vernal ponds.

Such ephemeral or vernal ponds, and other intermittent water habitats are rapidly disappearing from Fairfax County due to land development and changes in floodplain hydrology caused by excessive stormwater runoff. Intermittent water habitats are not protected by any state or local government regulations or policies.

Because mosquito breeding areas are currently under scrutiny due to the spread of the West Nile Virus, it is worth noting that in Fairfax County, the three types of mosquitoes known to transmit the virus are container breeders that are most likely to be found in discarded trash, clogged rain gutters or containers in homeowner yards, rather than in natural bodies of water. Ephemeral water bodies usually contain predator species that exert some control over mosquito populations.

Strategies

1.1 Explore existing wildlife assessment methodologies to identify appropriate tools for Park Authority use.

1.2 Create a pilot project at a minimum of three parks to regularly record sightings and nesting of species on the List of 16 Indicator Bird Species for three consecutive years. Compile and compare data on an annual basis. At least one of the sites will be a stream valley or other non-staffed park.

1.3 Prepare a Wildlife Species of Local Concern List to monitor species thought to be in decline or that appear to be particularly important in park ecosystems. Obtain peer review of the draft list and outline of associated research planned from the Virginia DCR and other appropriate organizations. After review and revisions, implement planned research.

1.4 Explore the potential of forming a citizen's advisory committee consisting of wildlife interest groups and knowledgeable individuals to provide guidance and assistance on wildlife management issues.

1.5 Promote partnerships and volunteer participation in wildlife inventories, plans and management.

1.6 Locate and map ephemeral/vernal ponds and related intermittent water bodies as part of the park master planning process and, if the features conform with established criteria, create a natural resource management plan and protect them with a resource stewardship zone designation in the master planning process and creation of a resource management plan.

1.7 Seek grant funding from the Wildlife Habitat Incentive Program (WHIP) in partnership with the USDA's Natural Resources Conservation Service.

Issue 2 Preserving Rare and Significant Wildlife

The preservation of federal endangered and threatened species is a legal requirement. Both the federal and state endangered and threatened species lists change over time, resulting in the addition and deletion of species. In addition, continuing fieldwork could result in identifying other federal or state listed species in Fairfax County parks.

There is one federally-listed wildlife species with the potential to nest on Fairfax County parklands, the bald eagle. The bald eagle has been seen in a number of county parks and has been observed nesting near Riverbend Park. There is only one state-listed endangered or threatened wildlife species thought to be likely to nest on Fairfax County parklands, the wood turtle. It has been seen at two parks.

The Virginia Rare Animal Species list also includes a category for wildlife species of "special concern," which means the species merit special attention or monitoring.

The Park Authority has not developed a list of wildlife species that are designated as threatened, endangered or of special concern by the federal government or the Commonwealth of Virginia. Development and maintenance of such a database for Fairfax County is an important tool to manage wildlife species.

Among the management practices that the Park Authority can pursue to preserve wildlife species is acquire and protect wildlife corridors that provide connectivity between what would otherwise be isolated wildlife habitats.

Strategies

2.1 Develop and maintain a Fairfax County Wildlife Database including federal, state or local designations of threatened, endangered or of special concern. New data from these sources will be incorporated annually.

2.2 For any threatened, endangered or special concern wildlife species on the Fairfax County Plants Database, complete queries in the GIS to map the extent of individual habitats required for each. Conduct field reconnaissance to determine whether each listed wildlife species (or suitable habitat for it) exists on parkland.

2.3 When threatened, endangered or special concern species listed in the Fairfax County Wildlife Database are located on parkland, initiate protection and management strategies according to legal requirements and agency policy to preserve the species and its habitat. If the animal and habitat meet established criteria, a site-level natural resource management plan will be prepared and the animal habitat will be protected with a resource stewardship zone designation in the master planning process.

2.4 All natural resource inventories conducted as part of park master plans will map identified habitats of threatened, endangered and special concern species on the Fairfax County Wildlife Database and determine whether any of the listed species occur in the park. If located and if the animal and habitat meet established criteria, a resource stewardship zone designation will be applied in the master planning process and a site-level resource management plan will be created.

2.5 Manage and protect selected areas in Riverbend Park to enhance bald eagle nesting habitat.

2.6 Identify, characterize and map strategic wildlife corridors within the county and develop protection strategies for them including acquisition and preservation.

Issue 3 Resolving Conflicts With Wildlife

Deer, geese and beaver are examples of wildlife that can be beneficial species in natural communities and thrilling to see in the wild but, when overabundant or when in proximity to humans, can cause significant impact on natural resources and human environments.

The Park Authority's Wildlife Conflict Resolution Policy requires the agency to "practice an attitude of acceptance of, and tolerance for, wildlife activity as part of the county's natural environment" and to "foster this attitude among the public through education." If tolerance of wildlife activity is not successful, the policy requires progressive steps from exclusion (such as fences, screens and repellants), to harassment (such as removal of nests or homes). Only when all other means are exhausted and a compelling need is demonstrated, can lethal force be employed in a humane manner.

Deer

Fairfax County has an over-abundance of White-tailed Deer. This has led to significant safety, environmental, health and property damage problems. Each year there are thousands of collisions within the county between deer and automobiles, resulting in damages averaging over $2,000 per vehicle. Two motorists have been killed in Fairfax County in recent years and many others seriously injured.

Heavy deer browsing in parklands has seriously degraded forest ecological function in some locations, virtually eliminating forest regeneration in the worst instances. Much of the destroyed native vegetation is being replaced by invasive plant species that have insignificant habitat value. Deer are also devouring landscaping material at other public, commercial sites, as well as in homeowners' yards. This damage is estimated to cost Fairfax County property owners over $1 million annually, according to the Fairfax County Wildlife Biologist.

Overabundance is affecting the health of the deer population overall, due to food competition, decreasing habitat and disease. Lyme disease, which is spread by deer ticks, is adversely impacting the human population. By overbrowsing, deer not only degrade their own habitat, but reduce the habitats which support wildlife populations of birds, amphibians, and other species.

The Fairfax County Board of Supervisors adopted an Integrated Deer Management Plan on December 8, 1998, which resulted in the creation of an ongoing Deer Management Program and in the hiring of its first County Wildlife Biologist. A Deer Management Committee made up of citizens, County staff and Virginia wildlife officials was also established. Fairfax County's current goal is to reduce deer population to 15-20 per square mile. While many methods of deer population reduction were evaluated in the plan, the only method found to be cost-effective in Fairfax County's program is hunting deer using police sharpshooters or public shotgun or archery hunts.

The Park Authority requires that a written plan be completed in coordination with the County Wildlife Biologist prior to deer population reduction at any park. To date, population reduction activities have occurred at Riverbend Park, Huntley Meadows Park, Sully Historic Site, Ellanor C. Lawrence Park and Burke Lake Park. Periodic deer population monitoring has occurred at several additional sites. The table below presents available deer population estimates for parks in which deer management has occurred.

Deer Management Data for Selected Parks

Park	Acreage	Deer Population Estimates			Estimated Deer per Square Mile 2002*
		2000	2001	2002	
Burke Lake	883	155	92	-	-
Difficult Run	863	-	-	43	185
Ellanor C. Lawrence	649	83	93	-	-
Huntley Meadows	1426	-	145	-	-
Lake Accotink	480	104	121	-	-
Riverbend	418			55	88
Sully	62	-	76	-	-
Wakefield	293	28	57	-	-

* Fairfax County's deer density goal is 15-20 per square mile.

Canada Geese

Resident Canada geese, whose population is increasing rapidly, are a property damage nuisance and may be a human health hazard. Canada geese are attracted to bodies of water and cause bank erosion. Their feces contribute to water pollution and may create human health hazards. Preliminary results of a U.S. Geological Survey study in the Accotink Creek watershed has found that 40% of the fecal coliform bacteria in the stream comes from waterfowl (20% was contributed by humans, 13% dogs, 5.4% raccoon, 1.4% deer and 21% from other sources). In addition, the geese are devouring lawns and other ornamental vegetation and fouling areas frequented by people. On County parklands, the Canada geese are having the greatest adverse impact on the golf courses, athletic fields and lakefront parks.

Geese Peace, Inc. has forged a partnership with the County Wildlife Biologist, Fairfax County Park Authority, Northern Virginia Regional Park Authority, Lake Barcroft Watershed Improvement

District, Fairfax Department of Public Works and Environmental Services, Fairfax County Public Schools, Citizens for the Preservation of Wildlife, Humane Society of the United States, and Northern Virginia Soil and Water Conservation District under which each partner will conduct geese management on the land under its control. Management actions include addling eggs to prevent hatching, planting brushy or prickly plants along shorelines to make water bodies less attractive, use of border collies to prevent access, and signs to discourage feeding of geese by people.

Beaver

Beaver are generally a positive influence within natural areas. The ponds resulting from their dams create more habitat diversity that attracts more diverse wildlife, such as fish and waterfowl. The dead snags of trees killed when land is flooded with a beaver pond provide valuable bird habitat. Beaver ponds and associated wetlands provide natural stormwater detention to reduce erosion from stormwater runoff and to reduce pollutants. However, in their quest for food and building materials, beavers harvest large quantities of vegetation, often including ornamental trees on adjacent homeowner property. Sometimes their ponds also encroach onto adjoining properties or cover trails.

Mitigation techniques utilized by park staff include advising neighboring homeowners about exclusion techniques, such as wrapping trees and shrubs near beaver ponds with wire mesh. Staff sometimes install drainpipes called beaver baffles through beaver dams to control water levels and limit flooding.

Insect Species

Mosquito breeding has become a major concern with the arrival of the West Nile Virus in the Washington metropolitan area. The Gypsy moth and several other invasive exotic insect pests have become well entrenched in northern Virginia. To minimize their impact, the Park Authority participates in the County Forest Pest Program, which takes an integrated pest management approach.

Other Species

This plan recognizes that occurrences of human conflict with other wildlife species will likely require occasional wildlife management actions. The agency also occasionally confronts instances of escaped or released exotic wildlife that could be dangerous to park environments or visitors. When these conflicts arise, Park Authority staff will consult with the Virginia Department of Game and Inland Fisheries, as well as other wildlife experts, to design an appropriate course of action that meets the requirements of the Wildlife Conflict Resolution Strategy.

Strategies

3.1 Continue to participate in Fairfax County coordinated programs to manage deer, Canada geese and insect pests. Design new facilities involving water bodies in a manner to discourage shoreline ingress and egress by resident geese.

3.2 In cooperation with the County Wildlife Biologist, develop an annual plan for deer management on parkland. The plan will summarize results of the previous year's program, cite deer population and habitat evaluation data from park sites in the Deer Management Program, identify park sites for deer population reduction, and note population reduction methods to be employed.

3.3 Provide information to increase citizen and staff awareness of the benefits and dangers of wildlife, the role of wildlife management and methods to peacefully coexist with wildlife. [Strategic Plan Strategy 6.1, Stewardship Opportunity Area]

3.4 After consultation with the Environmental Quality Advisory Council and the County Wildlife Biologist, present the Park Authority's Wildlife Conflict Resolution Strategy to the Fairfax County Environmental Coordinating Committee for possible adoption as a countywide policy. [Strategic Plan Strategy 6.1, Stewardship Opportunity Area]

3.5 Continue to track wildlife complaints received by the Park Authority to identify and track trends as a basis for analysis and appropriate wildlife management actions.

Background

The stream watersheds in Fairfax County are part of the large Potomac River basin, which is part of the even larger Chesapeake Bay watershed. The Chesapeake Bay is the largest estuary in the U.S. Its importance to the region's economy and quality of life is reflected in the landmark Chesapeake Bay Agreement between the governors of Maryland, Virginia and Pennsylvania, as well as the administrator of the Environmental Protection Agency and the mayor of Washington, DC. Because all of Fairfax County's streams and watersheds ultimately drain into the Chesapeake Bay, the county and the Fairfax County Park Authority have a responsibility to contribute to good stewardship of the bay.

Fairfax County has 980 miles of streams, many of which have been dramatically degraded over time by stormwater runoff and erosion. Since the Park Authority owns more stream valley land than any other Fairfax County landowner and has the responsibility to protect these lands, it is a key participant in water quality and stream restoration issues. Much of the stream valley land held by the Park Authority has been dedicated by land developers that donate floodplain land where construction is not permitted.

Development Impacts on Streams and Watersheds

Cities and suburbs occupy less than 2% of the land area of the lower 48 U.S. states, but are home to more than 75% of the continental U.S. population. This mass of humanity living in dense areas results in the replacement of porous, natural land surfaces with impervious surfaces such as roads, parking lots, driveways, sidewalks and roofs. A typical city block generates nine times more runoff volume than a woodland area of the same size, according to the Virginia Department of Conservation and Recreation. When rain falls on densely developed areas the stormwater gushes off hard surfaces instead of being filtered through natural vegetation and absorbed into the earth. It typically passes through an infrastructure of gutters, storm drains and sewer systems, before shooting from outfall pipes into streams.

Along the way the water picks up pollutants such as pesticides, chemicals, fertilizers, animal wastes, heavy metals and spilled gasoline or antifreeze, as well as heat. Such "nonpoint" sources comprise the largest cause of water pollution in the U.S. As a result, 40% of surveyed U.S. rivers, lakes and estuaries are not clean enough to meet basic uses such as fishing or swimming, according to the U.S. Environmental Protection Agency. Three-quarters of tested U.S. streams had contaminants at levels that exceeded guidelines for the protection of aquatic life. Since people come into contact with these polluted waters, eat fish from them or drink groundwater tainted by them, these issues also affect human inhabitants of the community.

Natural stream banks are lined with trees and other vegetation that shade the stream, making it cooler and controlling stream bank erosion. Plants provide habitat for fish and other aquatic life and, by trapping sediments and pollutants, they also help maintain water quality. Healthy streams are at a state of equilibrium which can accommodate normal variation in stormwater volume without causing extensive damage. When pollutant-laden stormwater runoff shoots out of pipe outfalls into streams at volumes far in excess of capacity, it scours and cuts stream beds, widens stream channels and washes away aquatic life, streambank plants and trees. When the equilibrium of a stream is disrupted, it takes many years to re-stabilize. Until then, soil continues to erode from streambanks and becomes suspended in the rushing water, only to separate again and settle to the bottom downstream when the water velocity slows. The resulting blanket of silt smothers aquatic life at downstream locations and fills in streambeds, wetlands, lakes and ponds. Native fish and other aquatic life cannot survive in urban streams severely affected by urban runoff. Invasive plant seeds are also spread by the floodwaters. This chain of degradation not only

affects our local water bodies, but compounds water quality problems all the way through the Chesapeake Bay.

Stormwater Management

A significant percentage of existing development projects in Fairfax County were constructed prior to implementation of current federal, state and local ordinances requiring control of stormwater runoff and non-point pollution, or were built when regulations were much less stringent. Current regulations are much improved but still control only a portion of the increased runoff and pollution. Some new projects also qualify for waivers from some requirements.

Streams are especially vulnerable during the construction of new developments when vegetation has been cleared from project sites and permanent stormwater control features have not been completed. Temporary controls are reasonably effective if properly installed and maintained. However, if temporary controls are not properly deployed or if they are overwhelmed by heavy storms, downstream habitats can be heavily damaged in a single event. Erosion from construction site stormwater runoff can carry 2,000 times more silt and sediment than would be removed from woodlands, according to the Virginia Department of Conservation and Recreation.

Stormwater management and best management practices (BMP) ponds are often used in new developments to meet requirements to reduce stormwater runoff and pollution. Such ponds now dot the landscape of Fairfax County, including parklands.

Healthy streams, ponds, wetlands and rivers provide many benefits that growing urban and suburban communities often fail to recognize until their water resources have been damaged beyond repair. Healthy floodplains and wetlands can often accommodate floodwaters, reducing downstream erosion and pollution. Clean water is healthier for recreation, and safer and less expensive to treat for use as drinking water. Water bodies are prized for recreation and tourism, and improve adjoining property values. According to a study by the National Association of Home Builders, proximity to a beach, pond or stream raises the value of a home by up to 28%.

Fairfax County's Stream Protection Strategy

In response to demands by citizens for water quality improvement and growing awareness of the Board of Supervisors of the severity of water quality issues, Fairfax county launched a Stream Protection Strategy (SPS) in 1998. SPS is the cornerstone of an integrated county effort to meet local, state and federal water quality requirements and begin to manage and preserve streams as important natural resources. SPS is based on frequent monitoring of stream health to provide an informed basis for management. The focus is biological indicators of stream health, including aquatic insects (benthic macroinvertebrates), fish, fecal coliform, selected chemical parameters and physical characteristics.

The 2001 SPS Baseline Study conducted by the Department of Public Works and Environmental Services (DPWES) found that 70% of Fairfax County streams are in fair to very poor condition, with only 30% in good or excellent condition. As expected, the study found a high correlation between level of development in county watersheds (high impervious surface levels) and biological degradation. A majority of Fairfax County watersheds are near or have exceeded the level of impervious surface cover at which biological impairment begins. The study ranks and categorizes watersheds as a basis for establishing priorities, implementing management strategies and allocating resources.

A preliminary analysis of stream watershed rankings for parkland watersheds shows that the majority have poor water quality as summarized below:

- **Watershed Protection Areas** – 4,862 acres of parkland (25% of total park acreage) are in watersheds with the highest water quality. Primary goal: preserve biological integrity by taking measures to identify and protect, to the extent possible, the conditions responsible for current high quality rating of these streams.

- **Watershed Restoration Level I** – 3,652 acres of parkland (19% of total park acreage) are in watersheds with intermediate water quality. Primary Goal: reestablish healthy biological communities, where feasible, by taking measures to identify and remedy the causes of stream degradation.

- **Watershed Restoration Level II** – 10,970 acres of parkland (56% of total park stream acreage) are in watersheds with the lowest water quality. Primary Goal: maintain areas to prevent further degradation and implement measures to improve water quality to support or comply with Chesapeake Bay Initiatives, Total Maximum Daily Load (TMDL) regulations and other water quality initiatives and standards.

Next steps for the county's SPS program include expanding community education, increasing volunteer stream monitoring and improving stormwater controls. Other county water quality initiatives being coordinated with SPS include:

- Watershed Planning. Under the Chesapeake 2000 Agreement signed by the governors of Virginia, Maryland, Pennsylvania, as well as the mayor of the District of Columbia and administrator of the Environmental Protection Agency, Fairfax County has pledged to develop management plans for its 30 watersheds over the next five years. Watersheds are seen as a valuable framework for planning for land use, natural resource protection, recreation, regulatory requirements, infrastructure improvements and quality of life. Currently plans are underway in five watersheds..

- Implementation of Chesapeake Bay Act Amendments. Revisions to Virginia's regulations concerning the Chesapeake Bay Preservation Act were adopted in 2001 that require localities to perform site-specific surveys to scientifically determine which water bodies have perennial (year-round) flow. Previous regulations relied on older and less accurate U.S. Geological Survey maps. Under the Chesapeake Bay Act and the corresponding Chapter 118 of the Fairfax County Code perennial streams, wetlands, tidal wetlands and tidal shores are included within Resource Protection Areas (RPAs), which are protected from most development. RPAs are vegetated buffer areas that play a valuable role in reducing sediments, pollutants and other adverse effects of human activities. RPAs are defined as areas within 100 feet of tidal shores, tidal wetlands, and perennial streams and associated wetlands, or areas of major floodplains as defined by the Fairfax County Zoning Ordinance. DPWES has completed a new map based on field surveys delineating all county perennial streams and revised RPAs. The revised map was adopted by Fairfax County Board of Supervisors on November 17, 2003.

- Implementation of Regional Pond Study Recommendations. In 2002, the Board of Supervisors directed staff to develop a unified county position on the use of regional ponds as part of a wider assessment of county water quality and stormwater management issues. Regional ponds are large stormwater facilities generally serving an area greater than 100 acres. The study concluded that regional ponds should not be considered the preferred alternative, but just one of many tools considered as part of stormwater management planning. The Regional Pond study notes, "It is essential that the watershed management planning process include FCPA objectives and work toward mutual county and Park Authority goals for environmental protection."

- Infill & Residential Development Study. Initiated by the Board of Supervisors, this study addressed a range of development issues associated with the County's scattered remaining parcels of undeveloped land. Initiatives include improvements in required erosion and sediment (E&S) control devices, enforcement of E&S control violations, reducing grading to save trees and citizen education efforts.

- Implementation of the New Millennium Occoquan Watershed Task Force Recommendations. The 2003 report of this Board of Supervisors task force included 29 recommendations, many of which are already being implemented.

- Implementation of the Virginia TMDL Program. In response to the 1972 Clean Water Act requirements that states establish total maximum daily loads (TMDLs) for waters not in compliance with water quality standards, Virginia enacted the Water Quality Monitoring, Information and Restoration Act in 1997. The TMDL represents the total amount of a pollutant a water body can assimilate and still meet standards. The Virginia Department of Environmental Quality (DEQ) monitors water bodies annually for 130 different pollutants to determined whether the water is safe for swimming, fishing and drinking. By 2010, DEQ is required to develop TMDLs for 600 impaired water bodies. Several Fairfax County streams have been identified as not meeting standards for fecal coliform bacteria, including portions of Sugarland Run, Pimmit Run, Hunting Creek, Backlick Run, Accotink Creek and Pohick Creek. TMDLs for fecal coliform bacteria have been developed so far for Accotink Creek and Four Mile Run.

- Stream Assessment Project. DPW&ES is completed a physical assessment of conditions for all Fairfax County stream valleys and a report of findings is expected in late 2003 or 2004.

Issue 1 Preserving Water Quality and Stream Valleys

The Park Authority's current Stream Valley Policy (Policy 101.3) was adopted in 1998 prior to more recent county and state initiatives and without the benefit of recent information concerning water quality and stormwater management. Given these developments, a staff review of Policy 101.3 is warranted to determine if policy changes should be recommended to the Park Board.

The Park Authority sometimes finds itself straddling preservation and development objectives with regard to its own extensive development program. The Park Authority's Values, as articulated in its 2002-2006 Strategic Plan reflect the agency's obligation to both protect natural resources and be a cost-effective developer. The values note the agency is "committed to building and preserving a park system that meets the community's needs in a cost-effective, fiscally-responsible manner."

One current issue that exemplifies the need to balance these two objectives is the Park Authority's use of conventional stormwater management (SWM) and best management practices (BMP) on and adjacent to parkland. To reduce costs and achieve the maximum size or number of facilities desired by citizens at a park, the Park Authority sometimes seeks waivers or utilizes conservation easement provisions available to developers. In some instances these practices may be at odds with the Park Authority's resource protection and management objectives.

Because the Park Authority owns a large percentage of the county's stream valley property, it does have an opportunity to help find solutions to community water quality challenges . Developers unable to meet required water quality mitigation within their development site are eager to explore

potential partnerships to satisfy regulatory requirements. This might include restoring a portion of a nearby stream on parkland or creating an artificial wetland within a park. Wetland banking or stream restoration banking are techniques that allow developers to contribute to the preservation or creation of wetlands in one location as compensation for damage they cause by developing land elsewhere. This concept has both supporters and detractors, but should be explored by staff to determine whether some forms of wetland banking and related approaches are compatible with the Park Authority's mission.

Strategies

1.1 Review Park Authority Policy 101.3 on Greenways/Stream Valleys and report to the Park Authority Board whether revisions to update the policy are recommended by staff.

1.2 As part of completing Stewardship Strategy 2.6 of the Fairfax County Park Authority 2002-2006 Strategic Plan, evaluate the practice of seeking stormwater management or water quality waivers, or placing conservation easements on park land. Report the benefits and costs of these practices to the Park Authority Board for policy guidance.

1.3 Explore whether wetland banking and other related concepts are consistent with the Park Authority mission and present findings and appropriate policy recommendations to the Park Authority Board for consideration. Include an evaluation of the Virginia Department of Transportation project at Mason District Park made possible by mitigation funds from the "mixing bowl" project.

Issue 2 Baseline Inventories for Water Resources

Fairfax County's Stream Protection Strategy has noted the need for volunteer assistance in monitoring water quality in county steams. The Park Authority has an opportunity to make a larger contribution to this goal because it owns more stream valley land than any other Fairfax County landowner and has a well established volunteer program with more than 1,000 members. The Northern Virginia Soil and Water Conservation District (NVSWCD) is already training volunteers participating in Virginia's Save Our Streams program under which participants commit to monitoring a local stream four times each year. Certified data is contributed to statewide monitoring efforts. The Audubon Naturalist Society (ANS) trains volunteers under a similar protocol. There is a natural partnership available to the Park Authority with DPWES, NVSWCD, ANS and VDEQ to involve park volunteers in water quality monitoring on parkland.

The Park Authority has between 85 and 100 stormwater management facilities on parkland, but some are in poor repair and maintenance responsibility for these facilities is not always clear. An inventory of stormwater management facilities on parkland is needed to determine their condition and effectiveness, as well as maintenance actions required and responsibility for repairs.

Outflow pipes from neighboring developments often release stormwater runoff directly into streams flowing through parkland. In some cases the volume or velocity of these outflows is causing extensive damage to stream quality, wildlife and habitats. An assessment of park stream valley land at stormwater outflows is needed to identify sites where corrective actions are most urgent.

Strategies

2.1 Continue and expand partnerships with DPW&ES, NVSWCD, ANS, DEQ, Fairfax County Public Schools and others to involve Park Authority volunteers in producing certified water quality monitoring data from park sites. Seek expanded coordination of data and information among participating organizations and volunteers.

2.2 Complete inventory and assessment of stormwater management facilities on parklands to determine their condition and effectiveness, as well as maintenance actions required and responsibility for ongoing maintenance. [Strategic Plan Strategy 2.2, Stewardship Opportunity Area]

2.3 For parks with water bodies, include water quality physical and biological assessments in natural resource baseline inventories as part of park master plans. When such aquatic habitats meet established criteria, a natural resource management plan will be created and a resource stewardship zone designation will be applied in the master planning process.

2.4 In cooperation with DPWES, begin an assessment of stormwater outfalls on or directly adjacent to parkland to identify locations of greatest concern for erosion and related damage. Explore options to mitigate damage at the sites of greatest concern.

2.5 Review the stream assessment data compiled by DPW&ES that is available for park stream valleys, identify problem areas on parklands, and develop a prioritized action plan for the most critical needs (including cost estimates for each project). Make this information available for consideration of stream restoration projects as part of preparing Park Bond referenda.

2.6 Continue and expand the current partnership with the U.S. Geological Survey to obtain data from research wells at Turner Farm Park and from stream monitoring on parkland.

Issue 3 Protecting Water Resources

The Park Authority has a responsibility to take action to protect water bodies, aquatic habitats and related wildlife. The cumulative damage to park stream valleys from stormwater runoff is widespread and will take decades to mitigate. A sustained commitment in programmatic and fiscal resources will be needed for many years to come. Stream restoration is very expensive and county planners recognize the need to create a dedicated funding source to restore stream valleys. The 1998 Park Bond program allocated $700,000 for countywide stream valley stabilization. Additional stream restoration projects are possible in partnership with the Virginia Department of Transportation, other partner organizations and volunteers.

The Park Authority also has an opportunity to inform its millions of patrons each year about the importance of water quality and stream valley restoration issues. Park Authority nature centers and conservation sites could include information on these topics in the interpretive programs they provide to tens of thousands of citizens. The agency's volunteers and "Friends" groups are another potential audience for this message.

Strategies

3.1 Participate in and closely monitor the Fairfax County Watershed Planning process being coordinated by DPWES by naming Park Authority staff to have direct involvement in each watershed plan involving streams passing through agency parkland. Keep the Park Board informed of the details of this process via the Quarterly Environmental Issues Update provided to the Board.

3.2 As Fairfax County Watershed Plans are adopted by the Board of Supervisors, incorporate their requirements and recommendations in park master planning, design and construction in those watersheds and as may be applicable countywide.

3.3 Continue to pursue opportunities as a partner in the Chesapeake Bay Network, to which Huntley Meadows and Riverbend Parks have already been accepted as official sites. Continue to seek grants available exclusively to designated network sites, including a continuing grant partnership with Great Falls National Park.

3.4 Continue to seek grants offered by the Chesapeake Bay Restoration Fund, the Fairfax County Water Authority and the Virginia Department of Forestry's Riparian Forest Restoration Program.

3.5 Seek partnership opportunities and volunteer projects with the Potomac Conservancy, the Virginia Department of Forestry, the Northern Virginia Conservation Trust, DPWES, DPZ, the Northern Virginia Regional Park Authority, the Fairfax County Tree Commission, and others to enhance riparian buffers and other aquatic habitats. Continue and expand semi-annual volunteer stream valley cleanup programs coordinated by five Park Authority sites.

3.6 Pursue opportunities to utilize best management practices (BMPs), low-impact development (LID) such as green buildings, rain gardens, and other innovative techniques to reduce water quality and other impacts of new or renovated Park Authority facilities. Embrace these technologies as an opportunity to demonstrate community leadership in water pollution control. When such features would add cost to development projects, provide comparative data regarding cost versus benefits.

Plan Elements Air Quality

Background

While summer smog and "Code Red" days have been familiar to Washington area residents in recent years, 2003 brought a new level of urgency to air quality issues when the region was designated a "severe non-attainment area" by the U.S. Environmental Protection Agency. The designation includes a requirement to make substantial reductions in air pollution by 2005 or lose millions of dollars in federal funds.

The type of pollution causing non-attainment is ground level ozone, commonly known as smog. Ozone is formed when pollutants from sources such as vehicles, industrial sources, paints and solvents are baked by the sun in hot, stagnant air. Unlike the ozone layer in the stratosphere, which protects us from ultraviolet radiation, high levels of ground-level ozone are known to cause lung function deterioration and respiratory tract cell damage. It also increases susceptibility to respiratory infections, exacerbates asthma and causes coughing, chest pains, and eye and throat irritation.

Air pollution also threatens natural ecosystems. Studies have shown that air pollution weakens the immune systems of many types of vegetation and can cause crop damage. Air pollutants deposited on ground surfaces are also washed into streams and rivers, degrading the quality of aquatic habitats.

The Fairfax County Executive released a "Declaration on Air Quality Leadership" in February 2003, noting the public health danger of air pollution and the negative impact that sanctions associated with non-attainment could have on improvements to the region's highways and mass transit. He announced that the Fairfax County government would take a leadership role in air quality improvements and called on all agency directors to act to support regional efforts.

Since the declaration, Fairfax County's inter-agency Environmental Coordinating Committee has chartered an Air Quality Subcommittee which is reviewing county practices related to air quality and is developing an action plan. Some county initiatives are underway, such as the purchase of low-emission hybrid replacement vehicles and promotion of teleworking and the RideSources program, a free ride-matching service to assist commuters in forming carpools.

Issue 1 Taking Action to Improve Air Quality

The threat from ozone to park visitors and natural resources prompts the inclusion of this issue in the Park Authority Natural Resource Management Plan. Action on this issue is an outgrowth of the agency's mission to protect natural resources and provide safe, healthy recreational opportunities for citizens to enjoy the natural environment.

The Park Authority has some unique opportunities for leadership on this issue due to its highly visible operations and direct interaction with millions of park visitors each year. For example, the Park Authority can make a significant contribution by providing trails on parkland which can expand the county's non-motorized transportation network, reducing the need for citizens to use cars when visiting or passing through parks. Results can include reduced air pollution, improved physical fitness and increased quality of life.

Strategies

1.1 Participate in the Fairfax County's Air Quality Subcommittee and support county efforts toward regional solutions. Plan and execute modifications of agency operations as required to meet requirements of state and county air pollution restrictions. In addition, the agency will identify and carry out opportunities to provide leadership within Fairfax County government and the community for operating policies and procedures to promote regional air quality.

1.2 Continue to educate Park Authority employees about the importance of reducing air pollution through additional articles in *Park News* and other means.

1.3 Incorporate air quality themes with other education programs offered at nature centers and other Park Authority sites, including promoting transit and other alternative transportation options in partnership with the Fairfax County Department of Transportation.

1.4 Develop criteria to evaluate park turf areas currently being mowed to consider whether mowing should be curtailed in some areas to reduce air pollution and create additional natural habitat. Develop signage such as the "Grow Zones" signs in Arlington County to inform the public of this resource management effort and the resulting benefits.

1.5 Begin to purchase 4-cycle engine string trimmers and leaf blowers for agency grounds maintenance as replacements are required for current 2-cycle engine equipment. Explore the cost-benefit of replacing remaining 2-cycle engine equipment before the end of its useful life span to accelerate air quality benefits of this transition.

1.6 Seek opportunities in partnership with the Fairfax County Department of Transportation, Virginia Department of Transportation (VDOT) and others to accelerate creation of trail linkages that provide opportunities for citizens to walk or bike rather than drive. Review the Northern Virginia Regional Bikeway and Trail Network Study created by VDOT for Fairfax County recommendations that may translate into grant or partnership opportunities.

Plan Elements Human Impact on Parklands

Background

Human use of parklands and the areas outside park boundaries inevitably has degrees of adverse impact on the natural environment. These include pollutants and erosion from stormwater runoff, illegal use of parks, encroachments, cumulative impacts of daily park visitation and construction of park facilities. The loss of dark night skies to light pollution is a natural resource issue of increasing concern to many Fairfax County residents.

The Park Authority must seek to create a balance between responsible natural resource management and the ability of citizens to use parks. While there are rare instances when a park natural area is completely off limits to visitation, planners and managers generally seek an appropriate balance between resource protection and visitation. This involves techniques such as siting of trails and other facilities to preserve the most valuable natural areas and to direct visitor flow in the most compatible manner, as well as tools such as creating distance barriers between visitors and fragile resources, and seasonal use restrictions.

Facility Design and Operation

Natural resources are often very sensitive to development. For example, while trails have far less impact than roads or most other facilities, trail location can be important to natural resource protection. Plants and wildlife are impacted up to 100 feet on both sides of trails, according to Greenways Incorporated. Edge effects, such as intrusion of invasive species, have been documented 130 feet into mixed hardwood forests in habitats similar to those in Fairfax County. As noted in the Vegetation Element, greater biodiversity is found in an undisturbed interior forest than along edges. Thus it is important to locate trails as close to existing edges as possible, while still giving visitors an opportunity to experience natural habitats. As noted in the Air Quality Element, trails also play a role in community transportation and can reduce air pollution by eliminating the need for motorized transport.

As a major developer of a wide range of facilities for visitors, as well as an organization dedicated to natural resource protection and education, the Park Authority has a unique opportunity to set an example for the community in designing and constructing facilities that minimize impact on natural resources and that preserve a connection to the natural environment. While the Park Authority now seldom provides natural resource education opportunities beyond nature centers or conservation sites, such interpretation can and should occur at all types of park facilities. The potential for the Park Authority to incorporate low impact development (LID) techniques was previously addressed in the Water Resources Element.

The Park Authority's varied operations also result in the release of pollutants from the use of motor vehicles, creation of solid waste, consumption of electricity, release of air and water pollution, and creation of other pollutants. As noted in the Natural Resource Planning Element, the Park Authority is one of the pilot agencies in Fairfax County creating an Environmental Management System (EMS) to identify forms of pollution from operations and create targets to control the most significant pollution sources. The goal of this process is to achieve E2 Environmental Enterprise certification from the Commonwealth of Virginia.

Encroachments

Another type of human impact on parkland is encroachment by adjoining property owners. Encroachments include activities such as mowing, plantings, trash dumping and construction of varied structures. It is common for homeowners to extend their backyards into parks by clearing native vegetation and creating additional lawn area. Many other homeowners dump grass clippings or yard debris, sometimes thinking such composting helps the natural environment. But clearing, mowing and dumping debris all promote the spread of invasive plants and harm natural vegetation. Many

homeowners see no reason why they shouldn't erect play equipment or storage sheds on parkland. In the worst cases, encroachments can destroy wetlands, mature trees, native vegetation, and wildlife.

When viewed individually, some encroachments seem trivial. However, since virtually all Fairfax County parks suffer from encroachments to a greater or lesser degree, their collective impact is enormous. The Park Comprehensive Plan and Strategic Plan recognize the need for greater emphasis on addressing encroachments. With the increasing significance of parklands within the county's environmental network, the control and mitigation of encroachments becomes more important.

Enforcement of encroachments is a challenge for the Park Authority. Lack of knowledge in the community about the damage from encroachments is a key factor. Individual homeowners who are park neighbors often believe their actions are benign or even beneficial. Elected officials who receive complaints from constituents about Park Authority enforcement efforts can easily conclude that the Park Authority is too aggressive about protecting public land when considering one case in isolation. The County Attorney's Office can easily conclude that filing suit against an individual citizen for an encroachment matter is a low priority. However, in both instances, if one citizen successfully resists enforcement, their neighbors often begin encroaching too. It is common to have encroachment hot spots where virtually all of the adjacent neighbors are encroaching.

An agency-wide Encroachment Work Group was formed under the leadership of the Park Authority Deputy Director in 2001. Encroachment procedures were revised and provided to the Park Authority Board as an Information Item later that year. Among the changes was the creation of a single agency database to tracking encroachments. The group explored ways to export this data to the GIS to map encroachments. A brochure for citizens on encroachments is near completion. The work group was reconvened in 2003 to revise the 2001 procedures based on experience using them. Reporting forms are now entirely on-line to speed and automate appropriate steps in the process. Additional work remains to refine procedures, encourage staff use of the system, and promptly resolve reported encroachments. Education, development of good relations with neighbors, and coordination with appointed and elected officials are also vital to success in controlling encroachments.

Violation of Regulations

Another form of adverse human impact on parkland is the violation of the Park Authority's Police Regulations, updated by the Park Authority Board in 2002. These regulations govern the use of parklands and are enforced by the Fairfax County Police Department. The types of regulation violations that can impact natural resources include littering, running dogs off leash, releasing exotic animals in parks, vandalism, off-road vehicle operation and use of weapons. The 2002 update of the Park Authority's regulations in cooperation with the Fairfax County Police Department represents a major accomplishment, not only in making the regulations current, but also in forging a partnership with the Police Department to improve enforcement. Workshops are currently being conducted for both Park Authority and Police Department staff to assure that the regulations and enforcement procedures are well understood. Increasing urbanization of parks often results in new uses of parks that may violate regulations or simply overwhelm the capacity of parks to support desired uses.

Issue 1 Assessing and Managing Human Impact on Parkland

The National Park Service (NPS) is a leader in developing and applying human impact analysis to natural areas and developing facilities that are sensitive to the environment and retain a sense of heritage. The Park Authority can benefit from reviewing NPS materials and practices, as well as those

of other best practices providers, to determine what policies and procedures may be appropriate to adopt.

While exploring the application of these techniques to broad planning and design issues, the Park Authority will undertake a pilot project to apply human impact analysis as a natural resource management technique. One possible pilot project stems from the Wakefield Park 2000 Trails Plan, which significantly expands trails in the park, including trails for mountain bikes. The pilot study could obtain baseline information about Wakefield Park natural resources and monitor the impact of the Trails Plan over time. The National Park Service's Arches National Park Plan provides examples of the types of environmental indicators that might be appropriate.

Strategies

1.1 Review National Park Service policies and procedures for assessing and minimizing human impact in the planning, design, construction and operation phases of park development, as well as policies of other appropriate "best practice" organizations. Recommend policies and procedures as deemed appropriate to the Park Authority Board.

1.2 Begin a pilot project to apply human impact analysis as a natural resource management technique, such as monitoring the impact on natural resources of the Wakefield Park 2000 Trails Plan.

1.3 Complete revisions and implementation of an effective encroachment enforcement process, encourage staff to report all active encroachments and assign necessary resources to promptly resolve current and future encroachment issues. Track encroachments in GIS. [Strategic Plan Strategy 4.2, Stewardship Opportunity Area]

1.4 Provide information to and seek partnerships with citizens, park neighbors, civic associations, park watch groups, the Fairfax County Police Department, the Office of the County Attorney, Department of Planning and Zoning, The Department of Public Works and Environmental Services, the Northern Virginia Regional Park Authority, elected/appointed officials and others to increase awareness of illegal activities in parks, including encroachments, and to enhance enforcement. [Strategic Plan Strategy 4.3, Stewardship Opportunity Area]

1.5 Survey and mark park boundaries system-wide and provide appropriate signs to inform park users of appropriate regulations and to facilitate police enforcement. Provide signs and brochures in appropriate languages for major park use groups.

1.6 Seek appropriate funding to create a staff unit to identify, investigate and resolve encroachments across park boundaries. Activities of the unit will include investigating apparent encroachments reported by staff or citizens, verifying borders, communicating with park neighbors in person or by mail, negotiating resolution of encroachment issues, removing illegal items from park property, maintaining the agency encroachment database, and referring encroachment cases to the County Attorney as required.

1.7 Present a semi-annual report on encroachment enforcement to the Park Authority Board.

1.8 As part of the Park Authority's cooperative partnership agreement with the Analemma Society, support the society's actions to monitor the dark sky at Turner Farm Park to record changes over time and to educate the public about light pollution and the loss of Fairfax County's dark night sky.

1.9 Create a proposed Green Procurement Policy for Park Board consideration that would begin a program of purchasing environmentally-friendly products when cost-effective options are available.

1.10 Identify parkland that has high potential for wild fire occurrences and incorporate effective response measures in agency emergency response plans and procedures. As appropriate, utilize assistance and training offered by the Virginia Department of Forestry.

1.11 Seek appropriate funding to create a staff unit to carry out natural resource management activities at various park sites based on completed site natural resource management plans. Activities of the unit will include habitat management, wildlife management, stream valley stabilization, meadow management mowing, debris removal, etc.

Plan Elements Education

Background

A vital ingredient of a successful natural resource management program is increasing citizen understanding of the value of their natural heritage, as well as support for the fiscal resources needed to protect and manage their natural resources. The Park Authority refers to its educational responsibility as "interpretation" – the communication process that forges emotional and intellectual connections between the interests of the audience and the meanings inherent in the resource.

The Park Authority's mission requires the agency to "…assist citizens in the protection and enhancement of environmental values, diversity of natural habitats and cultural heritage to guarantee these resources will be available to both present and future generations." The Park Authority's staff also can benefit from interpretive opportunities to increase awareness of the natural heritage it manages in trust for the public and how to best preserve it for future generations.

The Park Authority Board and staff recognize these needs and have acted in recent years to increase stewardship education. Both the Park Comprehensive Plant and the Park Authority Strategic Plan include interpretive initiatives. All new employees now receive orientation training that includes information on agency natural and cultural resources. Staff in the Resource Management and Planning and Development Divisions are planning joint workshops to increase staff knowledge of resource management issues. The current Strategic Plan requires the establishment of an inter-division team to evaluate how effectively the agency is incorporating natural and cultural resource protection in all aspects of agency operations. This evaluation will include a review staff education opportunities in resource stewardship. The evolving view in the agency's leadership is that every Park Authority staff member and every citizen can play a role in the preservation of Fairfax County's natural resources.

The Park Authority has a strong community natural history interpretation program already established at its nature centers. These programs are exceptionally well received by park patrons, with over 88% reporting they were very satisfied with the interpretive program they attended, according to a 2001 satisfaction survey of Resource Management Division sites. It is notable that the Park Authority has not built a new nature center for more than 20 years. The dramatic population growth in the western and southern portions of Fairfax County during that period leave major population areas without a nature center or nature interpretation services.

The Park Authority's well-established volunteer program, with over 900 volunteers in natural, cultural and horticultural sites alone, will also be a focus for interpretive efforts, as well as the thousands of members of "friends groups" that exist to support individual park sites. These existing assets provide a strong base for wider stewardship awareness efforts.

Issue 1 Providing Stewardship Education

The success of the Park Authority's quarterly *ResOURces* newsletter and *ResOURces Online* web site show there is an eager audience for stewardship information. In two years the newsletter's circulation has grown to over 15,000 per edition and the web site now averages 5,000 visits per month. The agency can greatly expand its impact on resource protection in Fairfax County by helping citizens to practice good stewardship on private land. This can have the effect of multiplying the impact of responsible resource stewardship on park land.

Strategies

Citizen Education

1.1 Continue to publish and expand the audience for the quarterly *ResOURces* newsletter and provide the *ResOURces Online* web site.

1.2 Establish a Resource Management section within *ResOURces Online* and post the agency Natural Resource Management Plan, as well as products resulting from the plan and natural resource inventory and management documents. Pattern the section after similar web sites offered by the National Park Service and the Nature Conservancy.

1.3 Expand the "Nature Finder" searchable database offered on *ResOURces Online* to include wildflower and bird data from additional parks.

1.4 Continue and expand the partnership with the Environmental Quality Advisory Council to provide an opportunity for the two bodies to share perspectives on County environmental issues.

1.5 Expand natural resource education opportunities in under-served areas of Fairfax County through new or expanded facilities, programs in community-based settings, partnerships with other organizations, or enhancing current programs and interpretive materials. [Strategic Plan Strategy 7.1, Leisure Opportunities Opportunity Area]

1.6 To increase patronage and citizen education, pursue improvements desired by patrons of nature centers in the 2001 Resource Management Division Customer Satisfaction Survey, including improved interpretive materials/signage, greater availability and variety of programs, and more convenient program registration procedures.

1.7 Offer natural resource education programs and materials to diverse audiences those speaking English as a second language or those that do not speak English.

1.8 Continue and expand the Countywide Horticulture Program and the Park Authority Master Gardener Program to provide education opportunities to citizens concerning good stewardship of horticultural resources and lands. [Strategic Plan Strategy 1.5, Stewardship Opportunity Area]

1.9 Expand the natural resources content of the Park Authority's Annual Report to provide a meaningful summary of natural resource management initiatives and accomplishments.

Staff, Board and Partner Education

1.10 Determine the level of stewardship knowledge needed by the Park Authority Board and staff. Conduct an assessment to measure the current knowledge level and deficiencies. Develop appropriate educational products and programs to address deficiencies, then reassess agency stewardship literacy.

1.11 Provide quarterly Environmental Issues Updates to the Park Authority Board to afford its members with a regular source of current information on key environmental issues for the Park Authority and Fairfax County. Provide copies of the updates to the Environmental Quality Advisory Council.

1.12 In cooperation with the Planning and Development Division (PDD), as well as the Department of Planning and Zoning and the Department of Public Works and Environmental Services, as appropriate, present a least four workshops for staff within these units to improve staff knowledge within appropriate disciplines. Develop other workshops and education materials as appropriate to increase staff understanding of and capabilities in natural resource management.

1.13 Expand natural resource orientation training for new employees to include examples of how each division of the Park Authority can contribute to natural resource management. [Strategic Plan Strategy 2.3, Stewardship Opportunity Area]

1.14 Provide the agency Natural Resource Management Plan and other appropriate resource management documents to interested volunteers and Friends group members.

Appendix Policy Background

Park Authority Mission Statement
The Fairfax County Park Authority's mission is:

> *To set aside public spaces for, and assist citizens in, the protection of environmental values, diversity of natural habitats and cultural heritage, to guarantee that these resources will be available to both present and future generations, and*
>
> *To create and sustain quality facilities and services that offer citizens opportunities for recreation, improvement of their physical and mental well being, and enhancement of their quality of life.*

Park Comprehensive Plan
The Park Comprehensive Plan, adopted by the Park Authority Board in March 1996, provides guidance for the protection of significant natural resources. The Plan recommends preparation of a natural resource plan to preserve significant natural resources.

The Park Comprehensive Plan states that Park Authority stewardship of over 22,500 acres is the primary means of preserving the county's environmentally sensitive natural resources.

The Park Comprehensive Plan describes the agency's natural resources and identifies the demand for natural resource-oriented recreational opportunities. The Park Comprehensive Plan also sets forth the measures for preserving the natural resources including:

- Use of Environmental Quality Corridors as defined in the County's Comprehensive Plan
- Identification and preservation of riparian areas and other significant habitats
- Protection of parklands from erosion
- Identification and preservation of rare ecological communities
- Monitoring and protection of federal and state endangered and threatened species
- Monitoring and protection of state and county rare species
- Monitoring and protection of species of state and local concern
- Coordination of efforts among public agencies to protect and enhance significant ecological resources
- Implementation of greenways
- Establishment of a natural resource database
- Preparation of a natural resource inventory
- Institute long-term protection and sustainability of natural resources
- Monitoring and protection against encroachments and unauthorized use

Strategic Plan
The Fairfax County Park Authority Strategic Plan: 1996-2000, adopted by the Park Board in April 1996, authorized the preparation of an agency-wide natural resource management plan. The Park Comprehensive Plan had previously provided general guidelines for the preparation of a natural resource management plan.

The Fairfax County Park Authority 2002-2006 Strategic Plan was adopted by the Park Authority Board in September 2001, and was updated in 2003. This five-year plan directs resources to the agency's critical work. Six categories of stewardship issues were identified including:

- Preserving open space
- Protecting park resources

- Expanding resource management
- Resolving encroachments
- Combating invasive plants
- Managing wildlife conflicts.

All of the natural resource management issues addressed in the Strategic Plan are also included in this agency Natural Resource Management Plan.

The Strategic Plan also presents seven values that "describe the essence of our organization," the first one of which is called Enhancing Stewardship: "We are stewards for a wonderfully rich community trust of natural and cultural resources. We will provide leadership to expand awareness, appreciation and protection of this heritage."

Park Authority Policies Related to Natural Resource Management
The Park Authority Policy Manual provides guidance to both the Park Authority Board and staff in the decision making process. The following is a brief presentation of the objectives and policies applicable to the natural resources.

- **Objective 100** provides for local parklands and conservation of natural resources for the benefit of current and future citizens.

    - **Policy 101** establishes a countywide park planning framework for the acquisition and development of public parks and for the conservation of significant natural resources. This policy also requires the agency to balance resource stewardship with the provision of recreation services, suggests that land adjacent to existing parks be acquired whenever feasible to enhance resource protection, and calls for interpretation and education programs to increase citizen understanding and appreciation of environmental, cultural and horticultural resources.

    - **Policy 101.1** sets forth land acquisition criteria for recreation development. The policy sets forth the minimum acreage of parkland required per 1000 population and the accepted driving times to reach the various park types. Both homeowner association lands and school sites may be used to meet the standards. This policy also requires that the Park Authority develop criteria for the acquisition and/or protection of natural resource sites.

    - **Policy 101.2** stablishes guidelines and mandates participation in the county's development review process. The intent is to mitigate the adverse impact of development on parklands and encourage the dedication of land for park use.

    - **Policy 101.3** defines greenways as linear open space corridors. These corridors include parks, areas of significant natural resources, residential communities, commercial centers and transit areas. Trails and sidewalks provide the connectivity among various greenway components. Greenways are intended to protect wildlife habitats, riparian corridors, environmental quality corridors (EQC) and water quality. They also function as a vehicle to control erosion, and provide for continuity of non-motorized access. The policy also identifies the stream valleys for acquisition and includes the provisions of the 1973 Stream Valley Park Plan which became the basis of Fairfax County's environmental quality corridor (EQC) system.

    - **Policy 102** sets forth a hierarchy of plans within the park planning process. The Park Comprehensive Plan identifies the county's long-range needs (10-15 years) for natural resource protection. The Strategic Plan implements the Park Comprehensive Plan. It sets

forth priorities to be implemented within a five year period, for land acquisition, resource management, planning, and development. Fiscal plans identify the funding sources and requirements needed to implement the strategic plan priorities. In addition to the system-wide plans, the park planning process provides for a hierarchy of plans for the development of individual parks. This includes the preparation of General Management Plans, Conceptual Development Plans and Project Implementation Plans. Each plan provides an increasing level of detail.

- **Policy 103** sets forth the park planning and development process for individual parks. General Management Plans define the park's purpose, classification and management framework. The site's natural assets and physical constraints are incorporated into management zones. Conceptual Development Plans provide for the location and conceptual design of development within the management zones. Project Implementation Plans define the specific development details, identify the phasing and contain cost estimates. The policy notes the desirability of reviewing park master plans at least every 10 years.

- **Policy 103.1** requires park development criteria and standards be established in the Park Classification System. Development is to be predicated on responsible stewardship and perpetuation of all natural resources.

- **Objective 200** requires the protection and preservation of significant and sensitive natural resources in accordance with adopted criteria and standards, in adherence with the natural resource management guidelines and in accordance with the Countywide Policy Plan.

- **Policy 201** on natural resources summarizes the Park Comprehensive Plan's natural resource provisions. The policy emphasizes the importance of the Park Authority as the primary steward for the county's natural resources. It requires that parks and open space easements must be assessed for ecological significance, which then must be incorporated into long range plans, strategic plans, general management plans and operations. The policy requires the preparation of natural resource plans for designated natural resource parks, stream valley parks and managed conservation areas. Development of park facilities must be compatible with natural resource management plans.

- **Policy 202** regarding wildlife conflicts requires the agency to attempt to resolve conflicts between wildlife and people. Each incident should be evaluated for safety and the impact on private and park properties. Existing laws, regulations, plans and wildlife management techniques will be followed in progressive levels of intervention to achieve conflict resolution. The agency will develop mitigation measures for the various types of wildlife conflicts. Citizen education is included to foster acceptance and tolerance of wildlife activity.

- **Objective 300** ensures the long term protection, preservation and sustainability of park resources.

- **Policy 301** states that the Park Authority shall protect lands and facilities it owns as a public trust and shall resist any effort to encroach upon or destroy any park, historical site, natural area, or recreational facility. It requires the agency to enlist the aid of the citizenry in support of this policy.

- **Policy 303** indicates that the siting of telecommunication facilities on parklands is only permitted when there are no prudent alternative sites. Proposed sites should not adversely

impact natural resources. The policy requires that revenue from telecommunication facilities be used solely at the park site where the facility is located during the initial license term.

- **Policy 304** regarding regional stormwater management facilities requires the Park Authority to limit the placement of such facilities on parkland unless there is no feasible and prudent alternative, and unless the facilities will not adversely affect significant natural resources.

- **Policy 305** on sustainable management practice states that park lands shall be protected from vandalism, dumping of debris, and unauthorized uses including encroachments and removal of trees, plants or animals.